

I CLAIM:

1. A method for manufacturing a transverse leaf spring, said method comprising the steps of:

5 providing a forming means and a mold adapted to receive said forming means;

installing a pre-braided tubular fiberglass structure over said forming means, said braid structure comprising a plurality of elongated fibers arranged to form an elongated, elastic tubular structure;

10 placing said forming means and said braid structure into a mold cavity within said mold;

injecting a resin material into said mold to cover said fibers; and curing said resin to create an integrated leaf spring component.

15

2. The method of claim 1 further comprising the step of applying pressure between said forming means and interior walls of said mold to press said fiberglass structure and said resin material against said walls.

20

3. The method of claim 2 wherein said forming means further comprises an elastomeric bladder adapted to fit closely within said mold cavity.

4. The method of claim 3 wherein said step of applying pressure further comprises inflating said bladder when in said mold cavity.

25

5. The method of claim 1 further comprising the steps of removing said component from said mold cavity and curing said component outside of said cavity.

30

6. The method of claim 1 wherein said tubular fiberglass structure is radially and longitudinally elastic.

7. A system for manufacturing a transverse leaf spring, said system comprising:

forming means having a shape corresponding to said leaf spring;

means for placing a pre-braided tubular fiberglass structure over said

forming means, said braid structure comprising a plurality of elongated fibers arranged to form an elongated, elastic tubular structure;

5 a mold cavity adapted to receive said forming means and said braid structure; and

means for injecting a resin material into said mold cavity.

8. The system of claim 7 wherein said forming means further comprises
10 an elastomeric bladder adapted to fit closely within said mold cavity.

9. The system of claim 7 wherein said means for placing a pre-braided structure further comprises a manual installer.

15 10. The system of claim 7 wherein said tubular fiberglass structure further comprises a plurality of fiberglass fibers extending helically in an interwoven fashion in a tubular shape.

11. A method for manufacturing a transverse leaf spring, said method
20 comprising the steps of:

providing a braided fiber structure comprising a plurality of elongated fibers arranged to form an elongated, elastic tubular structure;

integrating a resin material into said fiber structure to form a hollow, molded spring shape; and

25 curing said shape.

12. The method of claim 11 wherein said plurality of elongated fibers are formed from groups of generally aligned, multiple strands of fibers, each of said groups being interwoven into said braided fiber structure.

30

13. The method of claim 12 wherein a plurality of said groups extend helically around said structure to form said tubular shape.

10037048 123104

14. The method of claim 11 further comprising the step of providing a molding device for holding said braided fiber structure.

15. A composite transverse leaf spring comprising:

- 5 a braided fiber structure comprising a plurality of elongated fibers arranged to form an elongated, elastic tube, said tube defining a substantially hollow interior extending substantially the length of said fiber structure; and
- a resin material integrated with said fiber structure to form a leaf spring shape having a substantially hollow interior and tapered ends, said tapered
- 10 ends adapted to pivotally attach to axle components of a vehicle.

15

10037043 123101
10162T 840E001